

UM-SJTU PHYSICS LABORATORY VP241
DATA SHEET (EXERCISE 2)

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NOTICE. Please remember to show the data sheet to your instructor before leaving the laboratory. The data sheet will not be accepted if the data are recorded with a pencil or modified with a correction fluid/tape. If a mistake is made in recording a datum item, cancel the wrong value by drawing a fine line through it, record the correct value legibly, and ask your instructor to confirm the correction. Please remember to take a record of the precision of the instruments used. You are required to hand in the original data with your lab report, so please keep the data sheet properly.

U_S [V] \pm $0.5\% V$	$U_0(I_M = 0)$ [V] \pm $0.05\% + 6 \times 10^{-3}$	$U(I_M = 250 \text{ mA})$ [V] \pm $0.05\% + 6 \times 10^{-3}$
5.00	2.504	2.621

Table 1. Data for U_0 and U with $U_S = 5 \text{ V}$.

	U_S [V] \pm $0.5\% V$	U_0 [V] \pm $0.05\% + 6 \times 10^{-3} / 6 \times 10^{-4}$	U [V] \pm $0.05\% + 6 \times 10^{-3} / 6 \times 10^{-4}$
1	2.80	1.4004	1.4656
2	3.20	1.6002	1.6760
3	3.60	1.8022	1.8905
4	4.00	2.002	2.697
5	4.40	2.201	2.308
6	4.80	2.405	2.518
7	5.20	2.602	2.723
8	5.60	2.800	2.933
9	6.00	2.999	3.136
10	6.40	3.198	3.343
11	6.80	3.394	3.545
12	7.20	3.592	3.748
13	7.60	3.788	3.952
14	8.00	3.988	4.152
15	8.40	4.183	4.351
16	8.80	4.380	4.552
17	9.20	4.573	4.751
18	10.00	4.963	5.143

Table 2. Data for U_0 and U with different U_S .

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	I_M $A \pm 2\% A$	U $V \pm 0.05\% + 6 \times 10^{-3}$
1	0	0.83
2	0.05	30.08
3	0.10	51.32
4	0.15	73.38
5	0.20	97.71
6	0.25	121.64
7	0.30	143.67
8	0.35	166.63
9	0.40	187.79
10	0.45	210.10
11	0.50	231.19

Table 3. Measurement data for the I_M vs. U relation.

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	x [cm] \pm [0.05 cm]	U [V] \pm [0.05% + 6×10^{-3}]		x [cm] \pm [0.05 cm]	U [V] \pm [0.05% + 6×10^{-3}]
1	0.00	12.20	27	16.00	118.14
2	0.50	15.27	28	17.00	118.12
3	1.00	20.64	29	18.00	118.04
4	1.50	27.95	30	19.00	117.93
5	2.00	39.47	31	20.00	117.87
6	2.50	54.53	32	21.00	117.48
7	3.00	71.20	33	22.00	117.27
8	3.50	86.03	34	23.00	116.52
9	4.00	96.45	35	24.00	115.35
10	4.50	103.35	36	25.00	113.25
11	5.00	107.76	37	26.00	109.47
12	5.50	110.62	38	27.00	101.05
13	6.00	112.67	39	27.20	98.40
14	6.50	113.90	40	27.60	94.84 (91.27)
15	7.00	114.90	41	28 27.80	87.47
16	7.50	115.56	42	28.00	82.41
17	8.00	116.18	43	28.20	75.95
18	8.50	116.71	44	28.40	69.49
19	9.00	117.20	45	28.60	62.78
20	9.50	117.28	46	28.80	56.25
21	10.00	117.67	47	29.00	49.60
22	11.00	117.87	48	29.20	43.65
23	12.00	118.03	49	29.40	37.75
24	13.00	118.12	50	29.60	32.68
25	14.00	118.01	51	29.80	28.52
26	15.00	118.19	52	30.00	25.57

Table 4. Data for the U vs. x relation.

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